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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,570	06/28/2001	Fabrizio Petrini	S-94,651	6942
35068	7590	06/13/2005	EXAMINER	
UNIVERSITY OF CALIFORNIA LOS ALAMOS NATIONAL LABORATORY P.O. BOX 1663, MS A187 LOS ALAMOS, NM 87545			WU, QING YUAN	
			ART UNIT	PAPER NUMBER
			2194	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/895,570

Applicant(s)

PETRINI ET AL.

Examiner

Qing-Yuan Wu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/18/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-5 are pending in the application.
2. To insure proper consideration and to the extent required by 37 CFR 1.56, applicant is required to supply a copy of the publication references cited in the specification because they are not readily available to the examiner (e.g. see specification, pg. 15, line 20 to pg. 16, line 6).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - a. The following terms lacks antecedent basis:
 - i. The command- claim 3, line 5.
 - ii. The network- claim 3, line 7.
 - iii. The succeeding time interval- claim 3, line 9.
 - b. The following claim language is indefinite:
 - i. As per claim 1, it is uncertain whether “a global exchange” in lines 6-7 refers to “a global exchange” in line 8 (i.e. if it does then “said or the” should be used and “the global exchange” must be used throughout all the claims). In

addition, it is uncertain how “control information communications” being exchange relates to “a number of incoming jobs” (i.e. does the number of jobs means the number of processes the processor will be receiving in a subsequent time interval? Does control information communications contain only information on the number of incoming jobs each processor will receive in a subsequent time interval?).

ii. As per claim 3, it is uncertain whether “a strobe interval” in line 6 refers to “a strobe interval” in lines 3-4, and whether “a strobe interval” in lines 3-4 is the same as “the intervening strobe interval” in claim 1, line 9 (i.e. if it does then “said or the” should be used and “the intervening strobe interval” must be used throughout all the claims). In addition, it is uncertain whether “a total exchange” in line 7 refers to “a global exchange” in claim 1 line 6; and whether “the number of incoming communications” in lines 8-9 refers to “a number of incoming jobs” in claim 1, line 10 (i.e. if it does then applicant is encourage to use consistent terms in referring to the antecedent).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz et al (hereafter Raz) (U.S. Patent 6,173,306) in view of Kato et al (U.S. Patent 5,600,843).

7. As to claim 1, Raz teaches the invention substantially as claimed including a computer implemented method for scheduling processor jobs on a network of parallel machine processors or distributed system processors, comprising the steps of:

accumulating in buffers control information communications generated by each process performed by each processor during a defined time interval, where adjacent time intervals are separated by intervening strobe intervals for a global exchange of control information; and performing a global exchange of the control information communications at the end of each defined time interval during the intervening strobe interval [col. 5, line 64-col. 6, lines 1 and 5-29].

8. Raz does not specifically teach that each processor is informed by all of the other processors of the number of incoming jobs to be received by each processor in a subsequent time interval. However, Raz disclosed a rebalancing routine being called by a managing host processor after a polling cycle when imbalance of I/O requests are detected to balance the number of jobs to each processor [col. 6, lines 50-61; col. 9, lines 6-40]. In addition, Kato teaches a systolic array system in which synchronous communications among processor elements are performed over a common bus [Kato, col. 1, line 47-col. 2, line 14; col. 3, line 66-col. 4, line 11; Figs. 1-2].

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9. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have combined the teaching of Raz with the teaching of Kato because both Raz and Kato teach parallel processing [col. 1, lines 1-35; Kato, col. 1, lines 13-17].

10. As to claim 3, this claim is rejected for the same reason as claim 1 above.

11. Claims 2, 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz as modified as applied to claim 1 above, in view of Song et al (hereafter Song) (U.S. Patent 6,061,711).

12. Song was cited in the previous office action.

13. As to claim 2, Raz as modified does not specifically teach the claim limitation as recited. However, Song teaches halting a currently running program (hereafter program 1) in a computing system and context switch in another program (hereafter program 2). The state information of program 1 is saved and is used to context switch in program 1 when program 2 completes executing [Song, abstract, lines 1- 11].

14. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have combined the teaching of Raz as modified and the teaching of Song because Song's multitasking system would further enhance the system of Raz as modified by providing each processor with the capability of handling multiple tasks.

15. As to claims 4-5, Raz as further modified teaches the invention substantially as claimed including wherein each descriptor includes an identification of the type of communication [Song, 614, Fig. 6], the sending and receiving processors [Song, 616, Fig. 6], and the virtual addresses of the buffers [Song, 608, Fig. 6].

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qing-Yuan Wu whose telephone number is (571) 272-3776. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is (571) 272-3776.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Qing-Yuan Wu

Examiner

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MENG-AI T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100